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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,426	11/20/2003	David Reagor	S-100,556	3404
35068	7590	09/20/2005	EXAMINER	
UNIVERSITY OF CALIFORNIA LOS ALAMOS NATIONAL LABORATORY P.O. BOX 1663, MS A187 LOS ALAMOS, NM 87545			LE, DANH C	
			ART UNIT	PAPER NUMBER
			2683	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/719,426

Applicant(s)

REAGOR ET AL.

Examiner

DANH C. LE

Art Unit

2683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 is/are allowed.
- 6) ☒ Claim(s) 11-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 6/26/03 has been considered by the examiner and made of record in the application file.

Priority

2. It is noted that this application appears to claim subject matter disclosed in prior Application No. 60/483,146, filed 06/26/2003. A reference to the prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior

application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference

in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 10, 11, 13, 18, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle (US 2003/0161411) in view of Jenskin (US 6,088,351).

As to claim 10, McCorkle teaches a through-the-earth communication system (figure 20, 21) comprising:

a digital signal input device (115);

a transmitter operating at a predetermined frequency sufficiently low to effectively penetrate useful distances through-the earth (paragraph 0010), receiving said digital signal input and providing said digital input signal to a data compression circuit that is connected to an encoding processor (2007);

an amplifier (2010) receiving encoded output from said encoding processor for amplifying said encoded output and outputting said encoded output to an antenna (2011);

a receiver (2001) having an antenna receiving said encoded output followed by a band pass filter (paragraph 281) being connected to a decoding processor whose output is connected to an output data.

McCorkle fails to teach data decompressor, said data decompressor providing a decompressed digital signal. Jenskin teaches data decompressor, said data decompressor providing a decompressed digital signal (figure 19, 128). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Jenskin into the system of McCorkle in order to put data into its original format.

As to claim 11, the combination of McCorkle and Jenskin teaches the apparatus as described in Claim 10, wherein said digital signal input device is a digital video camera (McCorkle paragraph 318).

As to claim 13, the combination of McCorkle and Jenskin teaches the apparatus as described in Claim 10, wherein said encoding processor operates using quantum phase shift keying (paragraph 005).

As to claim 18, McCorkle teaches a method of conducting through-the-earth communication (figure 20, 21, paragraph 0252, 0253) comprising the steps of:

inputting an analog signal;

digitizing said analog signal;

compressing said digitized signal:

encoding said compressed digitized signal to encode a predetermined data stream into said compressed digitized signal; and

outputting said encoded compressed digitized signal through an antenna at a predetermined frequency that is sufficiently low to effectively penetrate useful distances through-the-earth as a transmitted signal;

receiving said transmitted signal with an antenna after said transmitted signal has propagated through-the-earth;

converting said transmitted signal from an analog signal to a digital signal
decoding said digital signal;

McCorkle fails to teach decompressing said digital signal and outputting said decoded decompressed digital signal. Jenskin teaches decompressing said digital signal and outputting said decoded decompressed digital signal (figure 19, 128).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Jenskin into the system of McCorkle in order to put data into its original format.

As to claim 22, the combination of McCorkle and Jenskin teaches a method as described in Claim 19, wherein said step of outputting said decoded decompressed digital data includes outputting an audio signal (Jenskin, col.4, lines 1-29).

4. Claims 15, 16, 18, 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle (US 2003/0161411) and Jenskin (US 6,088,351) in view of zz (US 2005/0176391).

As to claims 15, 16, 18, 20, 21, the combination of McCorkle and Jenskin teaches a through the earth communication, the combination of McCorkle and Jenskin fails to teach predetermined frequency is approximately 4 kHz, 7 KHz, the antenna is a SQUID detector connected to a flux locked loop and outputting to a speaker. Butters teaches low frequency is approximately 4 kHz, 7 KHz, the antenna is a SQUID detector connected to a flux locked loop and outputting to a speaker (paragraph 0065, 71, 97). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Jenskin into the system of McCorkle in order to transmit data with low frequency.

5. Claims 12, 14, 17, 23, are rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle (US 2003/0161411) in view of Jenskin (US 6,088,351).

As to claims 12, 14, 17, 23, the combination of McCorkle and Jenskin teaches a through the earth communication, the combination of McCorkle and Jenskin fails to teach the antenna is a loop antenna, the encoding processor operates using a QAM-16 processor, the band pass filter is of the wideband 4-pole elliptic design and inputting an

analog signal is accomplished by use of a microphone. However, the examiner takes Official Notice that these reciting limitations are known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of above reciting limitations into the system of McCorkle and Jenskin in order to enhance the system performance of the ultra wide bandwidth communication.

Allowable Subject Matter

Claims 1-10 are allowed.

As to claim 1, the teaching of above prior arts either alone or in combination fails to teach an audio signal input device and having an analog to digital converter receiving said audio signal input and passing said audio signal input to a data compression circuit whose output is connected to an encoding processor, said encoding processor output being provided to a digital to analog converter, said data decompressor providing a decompressed digital signal to a digital to analog converter and an audio output device receiving analog output from said digital to analog converter for producing audible output.

Dependent claims 2-10 are allowable for the same reason.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. Stolarczyk (US 2003/0063014) teaches shuttle-in receiver for radio imaging underground geologic structures.

B. McCorkle (US 6,735,238) teaches ultra wideband communication system, method, and device with low noise pulse formation.

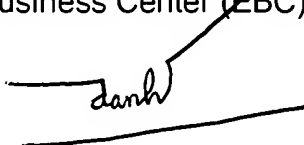
C. Miller et al (US 6,834,073) teaches system and method for baseband removal of narrow band interference in ultra wide band signals.

D. Noreen et al (US 5,689,245) teaches integrated communications terminal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANH C. LE whose telephone number is 571-272-7868. The examiner can normally be reached on 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM TROST can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "danh", is written above a horizontal line.

September 15, 2005.

DANH CONG LE
PATENT EXAMINER